

WHAT IS CLAIMED IS:

1. A method for the production of plastic parts, comprising the steps that
the plastic parts are injection-moulded by means of a moulding tool (5; 107),
and
5 the moulding tool (5; 107) is, after the injection-moulding, displaced together
with the plastic part,
characterised in that it further includes the steps that
the moulding tool (5; 107) is closed,
the moulding tool (5; 107) is subjected to a first force for holding together
10 thereof;
an injection-moulding nozzle (23) is positioned in the moulding tool; and
the moulding tool (5; 107) is subjected to a second force which is greater than
the first force for holding together thereof;
and, after the injection-moulding, the step that
15 the moulding tool (5; 107) is released of loading.
2. The method as claimed in Claim 1, wherein each plastic part is permitted to
cool during the displacement.
3. The method as claimed in Claim 1 or 2, wherein each plastic part, after the
injection-moulding, is displaced in relation to an injection-moulding position to a
20 cooling position.
4. The method as claimed in Claim 3, wherein each plastic part is permitted to
cool in the cooling position.
5. The method as claimed in Claim 1, wherein the moulding tool is subjected to
the first force during the displacement.
- 25 6. The method as claimed in Claim 1 wherein the moulding tool (5; 107) is
opened after the displacement.
7. The method as claimed in any of the preceding Claims, wherein injection-
moulding of a plastic part takes place in the injection-moulding position at the same
time as another previously injection-moulded plastic part is located in the cooling
30 position.

8. The method as claimed in Claim 1, wherein a plastic part in the form of a top section (25) is injection-moulded on one end of a sleeve (22) for forming a packaging container.
9. The method as claimed in Claim 8, wherein, in the positioning of the injection-moulding nozzle (23), the sleeve (22) is positioned in relation to the moulding tool (5; 107).
10. The method as claimed in any of Claims 1 to 7, wherein plastic parts in the form of opening arrangements are injection-moulded in apertures in a material web (101).
11. The method as claimed in Claim 10, wherein, in the positioning of the injection-moulding nozzle (23), the material web (101) is positioned in relation to the moulding tool (5; 107).
12. An apparatus for producing plastic parts, the apparatus having an injection-moulding nozzle (23), a moulding tool (5; 107) with co-operating mould parts or halves, which has an open and a closed position, as well as means (2, 100) for displacement of each plastic part in relation to an injection-moulding position where injection-moulding takes place, and means (2; 108, 109) for displacement of the moulding tool (5; 107) in the closed state together with the plastic part, **characterised in that** it further comprises a unity device (15) for holding together the mould parts (6) during the injection-moulding, wherein the unity device (15) is disposed to apply a first force and a second force on the mould parts (6) for holding together thereof, the second force being greater than the first.
13. The apparatus as claimed in Claim 12 which further displays a cam mechanism (17) for opening and closing, respectively, of the moulding tool by displacement of the mould parts (6) away from and towards one another, respectively.
14. The apparatus as claimed in Claim 13, which further displays retainer means (7) for supporting and displacing the mould parts (6).
15. The apparatus as claimed in Claim 14, wherein each retainer means (7) has a wheel (11) which is disposed to follow a cam groove (19).
16. The apparatus as claimed in Claim 15, wherein the wheel (11) is spring-biased.

17. The apparatus as claimed in Claim 12, which further displays means (24) for positioning the injection-moulding nozzle (23) in the moulding tool (5).
18. The apparatus as claimed in any of Claims 12 to 17, wherein the unity device (15) has a spring unit (13) for applying the first force.
- 5 19. The apparatus as claimed in any of Claims 12 to 18, wherein the unity device (15) has a piston and cylinder assembly (16) for applying the second force.
20. The apparatus as claimed in any of Claims 12 to 19, wherein said means (2) for displacing the moulding tool (5) comprises a rotary hub (4) and at least one arm (3) projecting radially out from the hub (4) and at whose radial outer end the
10 moulding tool (5) is disposed.
21. The apparatus as claimed in Claim 20, wherein said means (2) for displacing the moulding tool (5) has five radial arms (3), one moulding tool (5) being disposed at the radial outer end of each arm (3) with symmetric distribution about the hub (4).
22. The apparatus as claimed in Claim 20 or 21, wherein the moulding tool (5) is
15 disposed to be inserted in and removed from the unity device (15) by rotation about the hub (4).
23. The apparatus as claimed in any of Claims 12 to 19, wherein said means (108, 109) for displacing the moulding tool comprise pairwise disposed drive means.
24. The apparatus as claimed in Claim 23, which further includes means (100) for
20 advancing, in a direction of advancement (M), a material web (101) on which the plastic parts are to be injection-moulded and at which said drive means (108, 109) are disposed on either side of a position in which the material web (101) is advanced.
25. The apparatus as claimed in Claim 23 or 24, wherein said drive means (108, 109) are disposed to displace the moulding tool (107) in the direction of
25 advancement (M) of the material web (101) at a speed of displacement which is substantially the same as a speed of advancement at which the material web (101) is advanced.
26. The apparatus as claimed in Claim 24 or 25, wherein at least two moulding tools are disposed on each drive means.
- 30 27. The apparatus as claimed in any of Claims 23 to 26, wherein said drive means comprise rotary wheels (109).

28. The apparatus as claimed in any of Claims 23 to 26, wherein said drive means comprise endless belts (108).
29. The apparatus as claimed in any of Claims 23 to 26, wherein said drive means comprise endless chains (109).
- 5 30. The apparatus as claimed in any of Claims 12 to 22, which is disposed to produce plastic parts in the form of top sections (25) for packaging containers by injection-moulding of plastic parts on one end of a sleeve (22) of laminated paperboard.
- 10 31. The apparatus as claimed in any of Claims 12 to 19 or 23 to 29, which is disposed to produce plastic parts in the form of opening arrangements in a material web (101) of laminated paperboard intended for the production of packaging containers (110).